

Applicant : Andrew RICHARDSON
Appl. No. : 10/581,379
Examiner : Michael S. Andler
Docket No. : 20305-4012

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A bar code scanner comprising a light source means, and a light detector means and an elongate light transmissive opening arranged for being brought into proximity with a bar code for scanning thereof, the light source ~~means~~ being configured for directing a beam through said opening and the light detector ~~means~~ being configured for detecting light from said beam reflected back through the opening wherein said light detector and said light source are located within a body, and wherein said opening comprises a slit formed in a metallic element, said metallic element being mounted relative to said body.
2. (Currently Amended) A bar code scanner according to claim 1, wherein the light source ~~means~~ is configured for directing said beam through the slit such that the beam path through the slit lies in a plane substantially aligned with the slit.
3. (Currently Amended) A bar code scanner according to claim 2, where in the light source ~~means~~ is configured to direct light obliquely through the slit.
4. (Currently Amended) A bar code scanner according to claim 1, wherein the light detector ~~means~~ is configured for sensing reflections of said beam following a path through the slit that lies in a plane substantially aligned with the slit.

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5. (Currently Amended) A bar code scanner according to claim 4, wherein the light detector ~~means~~ is directional and arranged such that it is directed along a line substantially normal to the slit.

6. (Previously Presented) A bar code scanner according to claim 1, wherein the light source is an infrared LED.

7. (Previously Presented) A bar code scanner according to claim 1, wherein the metallic element is formed from a stainless steel.

8. (Previously Presented) A bar code scanner according to claim 1, further comprising a panel by which a sheet can be passed, the panel having an aperture through which the slit is exposed.

9. (Currently Amended) A bar code scanner according to claim 8, including further comprising a member having a dished portion, wherein the slit is formed in an opaque element which is accommodated in said dished portion and the dished portion is received in said aperture.

10. (Previously Presented) A bar code scanner according to claim 1, wherein the width of the slit is in the range 0.2 mm to 0.4 mm.

11. (Previously Presented) A bar code scanner according to claim 10, wherein the width of the slit is 0.3 mm.

12. (Previously Presented) A bar code scanner according to claim 1, wherein the separation of the openings of the slit is in the range 0.05 to 0.1 mm.

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13. (Previously Presented) A bar code scanner according to claim 12, wherein the separation of the openings of the slit is 0.075 mm.

14. (Currently Amended) A sheet validator including a sheet path along which a sheet to be validated is passed and a bar code scanner, according to ~~any preceding claim 1~~, located for scanning a bar code on a sheet passing along the sheet path, wherein the sheet validator comprises said body.

15. (Currently Amended) A method of manufacturing a bar code scanner comprising forming a light transmissive slit in a metallic element and mounting the element with respect to a body containing a light source ~~means~~ and a light detector ~~means~~, such that light from the light source ~~means~~ can pass through the slit and light from the light source ~~means~~ that is reflected back through the slit can be detected by the light detector ~~means~~.

16. (Previously Presented) A method according to claim 15, wherein the slit is formed by chemically etching a thin metallic element.

17. (Currently Amended) A method of manufacturing a sheet validator including a bar code scanner, the method including a method according to claim 15 for manufacturing said bar code scanner, wherein the sheet validator comprises said body.

18. (Currently Amended) A bar code scanner comprising:
a metallic element having a light transmissive slit therein;
a light source means for directing a beam through said slit, and

a light detector means for detecting light from said beam reflected back through the slit, said light source and said light detector being located within a body;

wherein the metallic element is mounted relative to said body and

wherein the slit is arranged for being brought into proximity to a bar code for scanning thereof.

19. (Currently Amended) A bar code scanner according to claim 18, wherein the light source ~~means~~ is configured for directing said beam through the slit such that the beam path through the slit lies in a plane substantially aligned with the slit.

20. (Currently Amended) A bar code scanner according to claim 19, where in the light source ~~means~~ is configured to direct light obliquely through the slit.

21. (Currently Amended) A bar code scanner according to claim 18, wherein the light detector ~~means~~ is configured for sensing reflections of said beam following a path through the slit that lies in a plane substantially aligned with the slit.

22. (Currently Amended) A bar code scanner according to claim 21, wherein the light detector ~~means~~ is directional and arranged such that it is directed along a line substantially normal to the slit.

23. (Original) A bar code scanner according to claim 18, wherein the light source is an infrared LED.

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24. (Original) A bar code scanner according to claim 18, wherein the metallic element is formed from a stainless steel.

25. (Previously Presented) A bar code scanner according claim 18, further comprising a panel by which a sheet can be passed, the panel having an aperture through which the slit is exposed.

26. (Previously Presented) A bar code scanner according to claim 25, further comprising a member having a dished portion, wherein the slit is formed in an opaque element which is accommodated in said dished portion and the dished portion is received in said aperture.

27. (Original) A bar code scanner according to claim 18, wherein the width of the slit is in the range 0.2 mm to 0.4 mm.

28. (Original) A bar code scanner according to claim 27, wherein the width of the slit is 0.3 mm.

29. (Original) A bar code scanner according to claim 18, wherein the separation of the openings of the slit is in the range 0.05 to 0.1 mm.

30. (Original) A bar code scanner according to claim 29, wherein the separation of the openings of the slit is 0.075 mm.

31. (Currently Amended) A bar code scanner comprising:
a metallic element having a slit therein,

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a light source ~~means~~-for directing light obliquely through said slit in a plane normal to and aligned with said slit, and

a light detector ~~means~~-for receiving light passing through the slit along a path normal thereto, said light source and said light detector being located within a body,

wherein the metallic element is mounted relative to said body and

wherein the light source ~~means~~-and the light detector ~~means~~-are on the same side of said element.

32. (Currently Amended) A sheet validator including a sheet path along which a sheet to be validated is passed and a bar code scanner comprising:

a metallic element having a light transmissive slit therein,

a light source ~~means~~-for directing a beam through said slit, and

a light detector ~~means~~-for detecting light from said beam reflected back through the slit, said light source and said light detector being located within a body,

wherein the metallic element is mounted relative to said body and

wherein the slit is arranged for being brought into proximity to a bar code for scanning thereof.

33. (Currently Amended) A sheet validator according to claim 32, wherein the light source ~~means~~-is configured for directing said beam through the slit such that the beam path through the slit lies in a plane substantially aligned with the slit.

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34. (Currently Amended) A sheet validator according to claim 33, where in the light source means-is configured to direct light obliquely through the slit.

35. (Currently Amended) A sheet validator according to claim 32, wherein the light detector means-is configured for sensing reflections of said beam following a path through the slit that lies in a plane substantially aligned with the slit.

36. (Currently Amended) A sheet validator according to claim 35, wherein the light detector means-is directional and arranged such that it is directed along a line substantially normal to the slit.

37. (Original) A sheet validator according to claim 32, wherein the light source is an infrared LED.

38. (Original) A sheet validator according to claim 32, wherein the metallic element is formed from a stainless steel.

39. (Previously Presented) A sheet validator according claim 32, further comprising a panel by which a sheet can be passed, the panel having an aperture through which the slit is exposed.

40. (Previously Presented) A sheet validator according to claim 39, further comprising a member having a dished portion, wherein the slit is formed in an opaque element which is accommodated in said dished portion and the dished portion is received in said aperture.

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41. (Original) A sheet validator according to claim 32, wherein the width of the slit is in the range 0.2 mm to 0.4 mm.

42. (Original) A sheet validator according to claim 41, wherein the width of the slit is 0.3 mm.

43. (Original) A sheet validator according to claim 32, wherein the separation of the openings of the slit is in the range 0.05 to 0.1 mm.

44. (Original) A sheet validator according to claim 43, wherein the separation of the openings of the slit is 0.075 mm.

45. (Currently Amended) A sheet validator including a sheet path along which a sheet to be validated is passed and a bar code scanner comprising:

a metallic element having a slit therein,

a light source ~~means~~ for directing light obliquely through said slit in a plane normal to and aligned with said slit, and

a light detector ~~means~~ for receiving light passing through the slit along a path normal thereto, said light source and said light detector being located within a body,

wherein the metallic element is mounted relative to said body and

wherein the light source ~~means~~ and the light detector ~~means~~ are on the same side of said element.

46. (Currently Amended) A method of manufacturing a bar code scanner comprising forming a light transmissive slit in a metallic element and mounting the metallic element with

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respect to a body containing a light source ~~means~~ and a light detector ~~means~~, such that light from the light source can pass through the slit and light from the light source that is reflected back through the slit can be detected by the light detector ~~means~~.

47. (Original) A method according to claim 46, wherein the slit is formed by chemically etching a thin metallic element.

48. (Original) A method of manufacturing a sheet validator including a bar code scanner, the method including a method according to claim 46 for manufacturing said bar code scanner.

49. (Original) A method of manufacturing a sheet validator including a bar code scanner, the method including a method according to claim 47 for manufacturing said bar code scanner.